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SMART SYSTEM FOR BUSH TICKETS

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Abstract **-** In this article, we advocate for a cashless, electronic bus ticketing system. In order to accurately compute fare, this system requires that every bus be outfitted with a Smart Card reader circuit. Passengers' accounts are charged according to the distance (number of stations) traveled, and a notification is sent to their mobile devices via the GSM module. The ticketing system is now completely cashless. In addition, the problem of women being sexually assaulted, abducted, or harassed while using public transportation may be mitigated by having the passenger's whereabouts sent to the passenger's guardian by text message. The benefits of a smart bus ticketing system are increased as a result.

Keywords **-** RFID module, GPS, GSM, Internet of Things (IoT), ARM7Micro-controller.

INTRODUCTION

As for the SMART CARD application, it's been a broad spread tool for both monitoring the transit Bus transportation and for the public ticketing system. It has already been an impressive success in major metropolitan areas including London, China, Shanghai, the United States, Istanbul, Canada, Australia, the United Kingdom, and many more. Aiding the public transportation system with cutting-edge artificial intelligence is a technological marvel. The quality of the bus service offered by the government is closely related to the efficiency of public transportation. Timely arrival at the station and an accurate identification of that stop by the bus are two indicators of service excellence. Because there are committed workers at both the beginning and the conclusion, reliability in terms of timing can be ensured. So for intermediary stops, timeliness cannot be guaranteed and locate the precise position of the bus. Using the bus's GPS system to keep an eye on it may be a smart move. Using GSM, send a message to the PMT headquarters and verify the number of riders on the bus.The difficulties of the public transportation system are an everyday reality. The situation is analogous to someone waiting an hour for a bus, only to find out that by the time the vehicle gets at his or her stop, it may already be completely filled. The bus driver would sometimes just not stop for passengers. Therefore, the waiter has just wasted an hour. A GPS-enabled hardware module will continuously monitor the vehicle's whereabouts, and infrared sensors will provide an accurate headcount of the bus's occupants.Passenger safety and the location of the present stop are also major concerns. All three of these issues are crucial in the public transportation sector, especially in the event of an emergency involving bus riders. Smart Card tracking and ticketing systems might be combined to find solutions. Although a GPS-based system is feasible to develop, we advocate instead for a SMART CARD-based system. environmentally safe. By simply inputting his present position and his destination on the keypad connected to every bus door, the public using SMART CARD based electronic tickets will have access to every bus service of the city. The information will be sent straight to the server's main database, and a corresponding credit will be added to the bus account. The time when the last bus on every route leaves will also be posted at each stop. Time is saved by using this automated technique.

LITERATURE REVIEW

The public transportation in many countries is being used as a means of bus transport for travelling people would prefer this public transportation to be scheduled properly. Earlier to reserve a ticket people had to waste a lot of time by standing in a long queue. Bus needs a conductor to collect money and issue ticket to each passenger; it is time consuming, manual error like improper distribution of ticket, passenger travelling without ticket, currency exchange and many other problems occur. To overcome these problems we are going to proposed smart bus ticketing system.

OBJECTIVES

- This idea is to provide more suitable, cashless ticketing system which eliminates paper tickets, which will increase thecomfortness of passenger while travelling.
- Saves the time and manpower.
- The systems also include modules such as women‟s safety and security, healthcare and emergency alerts.
- Reduce the currency exchange problem.

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II. PROPOSED SYSTEM

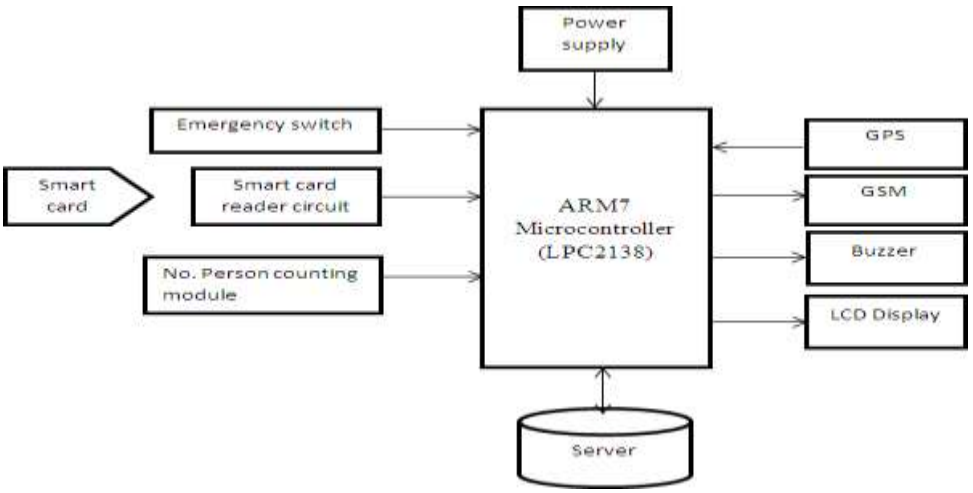

Fig. 1 System Block diagram

The system architecture is having LPC2138 which will execute all the controlling activities. The ticketing mechanism in this system is handled by an RFID module. The first time we use it, a payment counter is started; after the second use, the counter is reset, and the appropriate amount is debited from our smart card automatically based on the distance we've traveled. In addition, GSM is used to deliver the SMS to the cardholder's phone. In the event of an emergency aboard the bus, GSM will send an SMS to the designated contact number(s) with the bus's current GPS position. With the use of GPS tracking, we can find out where we are at any given moment. As an alternative to calling the police or heading to the hospital, panic buttons may send their coordinates to an Internet of Things database, which will then forward the data to the appropriate authorities. All these procedures are going to be conducted by IOT. It will show where the bus is right now and how many people are currently on board. Infrared (IR) sensors installed at the bus's entry and departure points will monitor passenger volume. All the data regarding the routes taken by the buses will be saved on the server. At the subsequent bus stop, the 16x2 LCD will show the output in terms of the current passenger count.

IV DESIGN METHOLOGY

For real-time operations and beyond, we may rely on ARM7 (LPC2138), a 32-bit controller. The 32 KB to 512 KB of flash memory it has is very fast. We are also having a facility of running a code at high clock rate by activating unique accelerator of roughly 128-bit wide memory. LPC2138's compact form factor and low power consumption make it suitable for a wide variety of applications. The device is well suited for excellent communication, protocols, and more thanks to its two serial communication ports from 2.0 high speed devices, SPI, UARTs, On-chip RAM from 4kb to 40kb, SSP to I2C, etc. It's convenient for usage in industrial applications due to its 10bit ADC and 10bit DAC, as well as its clocks, GPIO pins, interrupts, etc. The real-time clock (RTC) that is integral to our system is also included.

The LCD utilized is a 16-by-2-line model. LCDs, or liquid crystal displays, have the advantage over seven segment displays, which can only show numbers and a limited set of letters, because they are alphanumeric displays, able to show both letters and numbers as well as symbols. The sole drawback of LCD over seven segment is that seven segment is sturdy display can be viewed from a wider distance as compared to LCD. We're making use of a 16-by-2 alphanumeric display here. There's a limit of 16 characters per line, and we may show a total of two lines.

Infrared (IR) sensors are often used for the purpose of object and obstacle detection. It's made up of two parts: a transmitter and a receiver for infrared (or IR) light, the latter of which uses a photodiode to pick up the reflected signal and is invisible to the naked eye. We may adjust the distance and sensitivity of sensor by using potentiometer. GPS: Global Positioning System; utilized for determining a vehicle's precise position based on its current coordinates. The bus's whereabouts are monitored by a microcontroller equipped with a global positioning system. To go about in a car, you need a GPS navigation device, sometimes called a GPS receiver. It's the gadget that can track down GPS satellites and deduce its precise position from the data it receives.

Radio-frequency identification (RFID) modules are similar in function to barcode scanners. The only real difference between the two methods is line of sight, which is irrelevant in an RFID system. RFID is a high frequency based technology in which an RFID reader and RFID tags are employed. In place of a power supply, passive RFID tags rely on an antenna to broadcast a high frequency that is picked up by a reader.

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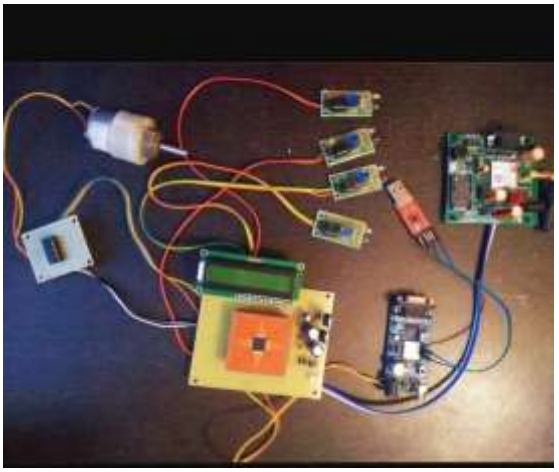
III.HARDWARE STRUCTURE OF SYSTEM



Fig,2 Hardware Structure of System

IV. RESULTS

When two passengers entered into the bus the count is incremented by two and displayed on LCD as shown in fig.1.Likewise when passenger leaved the bus, count was decremented and displayed on LCD shown in fig.2.

Fig.3 Result 1

Fig.4 Result 2

The ticket collected through RFID while passenger scans tag again while leaving the bus and amount deducted message is send on mobile will be like this given in following Image

Fig.5 Result 3

In emergency, message of female passenger journey send on her guardian mobile number.

Fig.6 Result 4

Fig.6 Result 5

CONCLUSION

Cashless ticket travel has many benefits, as will become apparent after a thorough examination of the system, including the elimination of long lines and the need for a bus conductor to collect money and issue tickets to each passenger, as well as the elimination of arguments over loose change, the identification of missing passengers, and corruption. Modules for girl's safety and emergency notifications are also part of this system.

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